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Application: 99256718

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### The high-tension insulator that can indicate the flashover fault

The high-tension insulator that can indicate the flashover fault relates to the insulator that uses on the high-tension electricity circuit.

At present, the insulator of the online in service use of high-tension electricity circuit, under thunder and lightning, inside overvoltage or the influence of filthy reason, behind the initiation insulator power frequency earth fault flashover, the fault point is difficult to accurately find rapidly, results in can not in time analysing the qualitative difficulty of failure cause, judges the failure cause and takes the correspondingly measure of keeping in repair. Generally speaking, the method that the fault point was looked for is in GPS positioning system and trouble range finding indicating range, pursues the base in the open air by the workman and steps on the pole, observe and confirm whether have obvious flashover burn vestige, and nevertheless because flashover route, short circuit current size and power operational time length are different, so that the flashover burn is the uncertainty, so even step on the pole inspection, also very easy under-enumeration fault point sometimes.

The purpose of this utility model lies in, provides a new insulator, and flashover fault point leaks the difficult problem of examining of examining in the solution high-tension electricity circuit.

This utility model technical scheme is as follows: cover an organic and inorganic composite coating or mould pressing on the porcelain paticoat surface of traditional design high-tension insulator and form the one deck on insulator dielectric surface and cover the membrane. This one deck composite covers the colour of membrane and the matrix colour of porcelain paticoat should have obvious difference. This utility model is in the use, and owing to reasons such as thunder and lightning, switching overvoltage and power frequency pollution cause insulator string power frequency ground connection flashover, this insulator porcelain paticoat tectorial membrane top layer will be burnt down in the effect of electric arc high temperature, the insulator expose insulator dielectric matrix the colour obviously distinguish mutually with cover pleurodiaphragmatic in terspace look, and with here instruction flashover fault.

The advantage of this utility model lies in: 1, electric power circuit attendant rapidly the accuracy find the fault point, improved maintenance efficiency, 2, its mode of indicating the flashover fault of warning of changing colour makes the line attendant need not step on the tower and can find the fault point rapidly on ground.

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Lighten and examine and repair workman's work high above the ground labour intensity. 3, the porcelain paticoat cover the membrane have the hydrophobicity, ageing-resistant, resistance to wear. 4, electric property and ordinary high-tension insulator equally accord with the national standard, do not have the influence to the potential distribution and the dielectric level of whole or whole string insulator.

The description drawings: Fig. 1 is the assembly drawing, wherein has steel cap 1, cement gel mixture 2 and 6, porcelain paticoat 3, organic and inorganic composite membrane 4, (because 4 membranes in the skirt section are very thin, marking with putting a setting-out with the position that its dress attaches on porcelain paticoat 3) steel foot 5.

Embodiment: according to national standard manufacturing and designing high-tension insulator; To porcelain or safety glass matter porcelain paticoat, adopt die pressing, infusion process, spray process or spread coating technique, the application covers the membrane by organic and Inorganic Materials composite; Its membrane material main component is: silica (particulate or superfine grain) colloidal sol commodity, resistivity is not less than  $1 \times 10^{16}$  ohm centimetre or its shot-like particle (epoxy, polyester, phenolic aldehyde class commodity) of ohm centimetre, silicone plastics colloidal sol, (the adhesive can adopt phenolic aldehyde, urea aldehydes glue commodity, as 201-204 adhesive, acetal dry to glue etc. be used for porcelainous product), inorganic pigment (iron oxide black, ultramarine); One of method of scribbling: adhesive 70%, silicone plastics 10%-20%, silica 10%-20%, the inorganic pigment is a small amount of, 1%; The NPT mixes down; Flood the mixture on the porcelain paticoat again, dry; With 160 DEG Cs with the ordinary pressure under the condition put into the oven heating cure 2 hours, can use behind the natural cooling. Usable synthetic adhesive includes: series of products such as the JW of epoxies, SW, E, CJ, HY; The indisputable anchor tablet and the Great Wall tablet series of products of polyurethane class and phenolic aldehyde class and urea aldehydes.

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### Claim

1, the high-tension insulator that can indicate the flashover fault, by steel cap 1, porcelain paticoat 3, the steel foot 5, and pack with the cement gel mixture and make, characterized in: 4 departments in the skirt section of porcelain paticoat 3 scribble the coating of comprising organic and Inorganic Materials and cover the membrane.

2, the high-tension insulator that can indicate flashover fault according to claim 1 characterized in: cover the membrane by silica 10%-20%; Silicone plastics 10%-20%; Phenolic aldehyde or urea aldehydes adhesive 70%; A small amount of inorganic pigment, (iron oxide black or ultramarine 1%) wait the composition to mix the component.

3, according to the 1 and 2 said high-tension insulators that can indicate the flashover fault of claim, characterized in: used phenolic aldehyde class adhesive is the 201-204 adhesive; Or the acetal is dried glueyly.

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## [12]实用新型专利说明书

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[73]专利权人 寻凯

地址 448000 湖北省荆门市白庙路79号

共同专利权人 何成华

[72]设计人 寻凯 何成华

[21]申请号 99256718.1

[74]专利代理机构 荆门市专利代理事务所

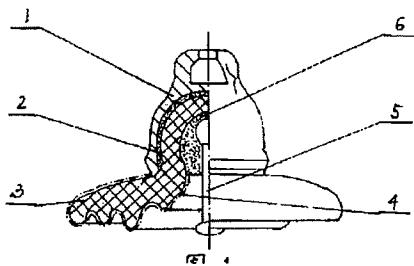
代理人 尹学谦

权利要求书1页 说明书2页 附图页数1页

[54]实用新型名称 一种可指示闪络故障的高压绝缘子

[57]摘要

一种可指示闪络故障的高压绝缘子，在高压绝缘子瓷裙上涂覆有机和无机复合材料，形成一层覆盖膜；其颜色和瓷裙基质颜色有明显区别；发生闪络故障后，覆盖膜被电弧高温烧掉，所露出瓷裙颜色与覆盖膜原色明显不同，并以此指示闪络故障；便于迅速准确找到故障，提高检修效率，减轻高空作业劳动强度。本实用新型的电位分布和绝缘性能不变。



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## 权利要求书

- 1、一种可指示闪络故障的高压绝缘子，由钢帽1，瓷裙3，钢脚5，并用水泥胶合剂填充制成，其特征是：瓷裙3的裙部4处涂有由有机和无机材料组成的涂层覆盖膜。
- 2、根据权利要求1所述的一种可指示闪络故障的高压绝缘子，其特征是：覆盖膜由二氧化硅10%—20%；有机硅塑料10%—20%；酚醛或脲醛类胶粘剂70%；少量无机颜料，(铁黑或群青>1%)等成分混合组成。
- 3、根据权利要求1和2所述的一种可指示闪络故障的高压绝缘子，其特征是：所用的酚醛类胶粘剂是201—204胶粘剂；或缩醛烘干胶。

## 说 明 书

### 一种可指示闪络故障的高压绝缘子

一种可指示闪络故障的高压绝缘子，涉及一种高压电力线路上使用的绝缘子。

目前，高压电力线路在线运行中使用的绝缘子，在雷电、内部过电压或污秽原因影响下，引发绝缘子工频接地故障闪络后，故障点难以迅速准确地找到，导致对故障原因定性困难，不能及时分析，判断故障原因并采取相应地维修措施。一般情况下，故障点查找的方法是在GPS定位系统和故障测距指示范围内，由工人在野外逐基登杆，观察确认是否有明显闪络烧伤痕迹，但由于闪络路径、短路电流大小、以及电源作用时间长短不同，以致于闪络烧伤呈不确定性，所以即使登杆检查，有时也很容易漏查故障点。

本实用新型的目的在于，提供一种新的绝缘子，解决高压电力线路中闪络故障点漏检难检的问题。

本实用新型技术方案如下：在传统的定型高压绝缘子的瓷裙表面将一种有机和无机复合材料涂覆或模压覆盖在绝缘子电介质表面形成一层覆盖膜。这一层复合材料覆盖膜的颜色与瓷裙的基质颜色应当有明显的区别。本实用新型在使用中，由于雷电、操作过电压以及工频污染等原因引起绝缘子串工频接地闪络，该绝缘子瓷裙覆膜表层在电弧高温作用下将被烧掉，所露出绝缘子电介质基质的颜色与覆盖膜原色明显相区别，并以此指示闪络故障。

本实用新型的优点在于：1、电力线路维护人员能迅速准确找到故障点，提高了检修效率。2、其变色示警指示闪络故障的方式使线路维护人员不需登塔在地面即可迅速发现故障点，

减轻检修工人高空作业劳动强度。3、瓷裙覆盖膜具有憎水性、耐老化、抗磨损。4、电气性能与普通高压绝缘子一样符合国家标准，对整个或整串绝缘子的电位分布和绝缘水平无影响。

附图说明：图1为总装配图，其中有钢帽1，水泥胶合剂2和6，瓷裙3，有机和无机复合材料膜4，（由于裙部4膜很薄，以其装附在瓷裙3上的位置用点画线标示）钢脚5。

实施例：按国家标准设计制造高压绝缘子；对瓷质或钢化玻璃质瓷裙，采用模压法、浸渍法、喷涂法或刷涂法技术，涂装由有机和无机材料复合材料覆盖膜；其膜材料主要成分为：二氧化硅（细粒、或超细粒）溶胶商品，电阻率不小于 $1 \times 10^{16}$ 欧姆·厘米的绝缘树脂或其粉状物（环氧、聚脂、酚醛类商品），有机硅塑料溶胶，（胶粘剂可采用酚醛、脲醛类胶商品，如201—204胶粘剂、缩醛烘干胶等用于陶瓷的产品），无机颜料（铁黑、群青）；涂法之一：胶粘剂70%，有机硅塑料10%—20%，二氧化硅10%—20%，无机颜料少量， $\geq 1\%$ ；常温常压下混合；再将混合物浸渍于瓷裙上，晾干；以160°C和常压下条件放入烘箱中加温固化2小时，自然冷却后即可使用。可使用的合成胶粘剂包括：环氧类的JW、SW、E、CJ、HY等系列产品；聚氨脂类和酚醛类以及脲醛类的铁锚牌和长城牌系列产品。

## 说 明 书 附 图

